7003

C20-A-AA-AEI-CH-CHST-BM-TT-MET-MNG-C-CM-EC-EE-CHOT-CHPC-CHPP-PET-AMT-AMG-WD-CAI-AIM-CCB-CCN–

COMMON -103

7003

BOARD DIPLOMA EXAMINATION, (C-20)

JANUARY—2023

FIRST YEAR (COMMON) EXAMINATION

ENGINEERING PHYSICS

Time : 3 hours] [*Total Marks* : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. List three advantages of SI units.

2. Define vectors and scalars.

3. A body is taken 4 seconds to reach the ground when it is dropped freely from the top of the building. Calculate the height of the building.

4. Write three advantages of friction.

5. Define the terms *(i)* work, *(ii)* power and *(iii)* energy.

6. Calculate the length of the seconds' pendulum where the value of $g = 9{\cdot}81\ ms^{-2}$.

7. State the first law and second law of thermodynamics.

8. Distinguish between musical sound and noise.

9. * A bar magnet of pole strength 20 Am has a magnetic length of 0·1m. Find the magnetic moment.

10. State Kirchhoff's current law and voltage law.

PART—B

Instructions : (1) Answer **all** questions.

(2) Each question carries **eight** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* State and explain triangle law and polygon law of vectors. 4+4=8

(OR)

(b) Define oblique projection with one example.Show that a path of oblique projection is a parabola. 2+6=8

12. *(a)* Derive an expression for the acceleration of a body sliding down on a rough inclined plan with a legible sketch.

(OR)

(b) State the law of conservation of energy and prove it in the case of a freely falling body. 1+7=8

13. *(a)* Define simple harmonic motion with one example. Derive the expressions for *(i)* displacements and *(ii)* velocity of a body executing SHM. 2+6=8

(OR)

(b) Distinguish between the isothermal process and the adiabatic processes.

14. *(a)* Define noise pollution. Write three causes and effects of noise pollution. 2+3+3=8

(OR)

(b) Define viscosity with three examples. Write Newton's formula for viscous force and name the symbols in it. 2+3+3=8

15.* *(a)* Describe meter bridge with a legible sketch. Write the formula for resistivity of the materiel of a given wire.

(OR)

(b) Write any for applications each of the following :

(i) nanomaterials and *(ii)* optical fibers. 4+4=8

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) The question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Derive the expression for the period of a simple pendulum. State the laws of simple pendulum.

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